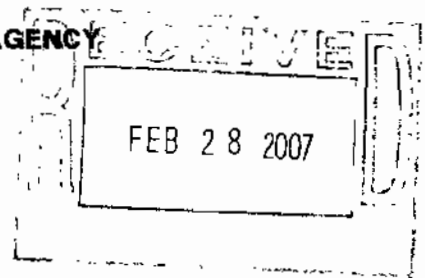




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



FEB 23 2007

REPLY TO THE ATTENTION OF:

WW-16J

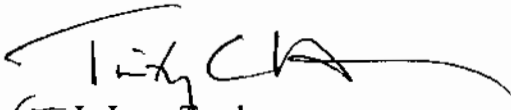
Brad Moore, Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road N.
St. Paul, MN 55155-4194

Dear Mr. Moore:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Load (TMDL) for Lake Independence (ID# 27-0176-00), including supporting documentation and follow up information. Minnesota's submitted TMDL for total phosphorus addresses the excess nutrient loads that impair the Recreational Use Support in approximately 851 acres of Lake Independence in the Pioneer-Sarah Creek Watershed. Based on this review, U.S. EPA has determined that Minnesota's TMDL for total phosphorus meets the requirements of Section 303(d) of the Clean Water Act and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, U.S. EPA hereby approves Minnesota's one TMDL for this impaired lake. The statutory and regulatory requirements, and U.S. EPA's review of Minnesota's compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Minnesota's effort in the submitted TMDL, and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,


Jo Lynn Traub
Director, Water Division

Enclosure

cc: Jeff Risberg, MPCA
Timothy Larson, MPCA

**DECISION DOCUMENT
LAKE INDEPENDENCE PHOSPHORUS TMDL**

Section 303(d) of the Clean Water Act (CWA) and U.S. EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for U.S. EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and U.S. EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for U.S. EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and U.S. EPA's TMDL regulations should be resolved in favor of the regulations themselves.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and non-point sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from non-point sources, the TMDL should include a description of the natural background. This information is necessary for U.S. EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired waterbody is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and
- (5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comments:

Lake Independence (Segment ID# 27-0176-00) is an 851-acre lake located approximately 15 miles west of Minneapolis, Minnesota (Figure 1 of final TMDL submitted report). The lake discharges into Pioneer Creek (Pioneer-Sarah Creek watershed) which flows southwest to the Crow River. Lake Independence and its surrounding drainage area contains portions of three municipalities; Independence, Medina, and Loretto, all within Hennepin County. The lake is used extensively for boating, fishing, swimming and aesthetic viewing by local residents as well as the entire Twin Cities regional area. The south shoreline of the lake is within Baker Park Reserve and contains two public swimming beaches, a campground, an ADA accessible fishing pier, numerous picnic areas and a boat launch. Lake Independence is identified on Minnesota's 2006 303(d) list as impaired for excess nutrients and fish consumption advisory (FCA) for mercury (See the Table below). Excess nutrient was identified as the impairment contributing to nonattainment of the recreational use. Mercury in fish tissue (FCA-mercury) was identified as the impairment contributing to nonattainment of the aquatic consumption use. This TMDL is only addressing the excess nutrient impairment. Future TMDLs are planned by the state to address the mercury fish consumption impairments.

The 7631-acre watershed surrounding Lake Independence is predominantly used for crop and livestock agriculture, but also includes residential developments, commercial areas, industrial plots, wetlands, and parkland (Figure 3 of final TMDL submitted report). However, land-use patterns have shifted dramatically over the past ten to fifteen years as new residential and commercial developments displaced the predominant agricultural areas. The watershed experienced a doubling of impervious surface area from 942.2-acres to 1,759-acre during 1986 through 2002. These land use changes are expected to continue as new residential developments are constructed in the area. The watershed currently contains only 4.5% impervious surface area.

Point sources contributing to the nutrient impairment in Lake Independence include three Municipal Separate Storm Sewer Systems (MS4s) (Independence, Loretto and Medina), and one municipal wastewater treatment facility (permit# MN0023990) (Table 11 and Section 3.2.3 of final TMDL report). The municipal wastewater treatment facility in Loretto, Minnesota is currently permitted to periodically release treated sewage effluent into a wetland complex that flows to Spurzem Lake within the Lake Independence watershed.

Nonpoint sources contributing to the nutrient impairment in Lake Independence include agricultural runoff from cropland and livestock rearing, urban runoff, and runoff from failing septic systems. Another nonpoint source identified is the internal nutrient recycling from the lake bottom sediments.

During warmer months of late spring and summer, the lake undergoes thermal stratification as the warm water is less dense than the colder water below resulting in a layer of warm water that floats over the cold water. Three distinct water layers are created as part of the lake's thermal stratification: the epilimnion (layer of warm water at the lake surface), the hypolimnion (cold layer below the epilimnion), and the thermocline (layer of water that separate these two layers). The warm water, abundant sunlight, and nutrients brought up from the lake bottom during spring overturn provide an ideal environment for algae growth within the epilimnion. Since lake stratification acts as a deterrent to complete lake mixing, the water only mixes in the epilimnion, which in turn promotes the dissolved oxygen (DO) depletion in the lake bottom. The respiration by animals, the decomposition of sinking dead algae from the epilimnion, and other microbial processes accelerate the depletion of DO in the hypolimnion. The anoxic conditions created by the depletion of DO in the hypolimnion stimulate a significant accumulation of phosphorus in deeper areas of the lake. As temperatures decrease, the lake destratifies and mixes (fall turnover) before the lake stratifies again during the winter season. In winter lake stratification,

the colder-icy water remains above and the warmer-liquid water layer sinks to the lake bottom. As spring approaches and temperatures increase, the lake destratifies and mixes again (spring turnover) causing the phosphorus accumulated in the lake bottom sediments to get mixed into the surface water layer of the lake where it becomes available once again to algae and other aquatic plants.

Minnesota's 2006 303(d) list includes a projected schedule for TMDL completions. This schedule reflects the state's priority ranking of impaired waters. The schedule for Lake Independence TMDL for nutrients has a priority ranking within the top 8% of Minnesota's listed waters.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this first element.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. (40 C.F.R. §130.7(c)(1)). U.S. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comments:

Minnesota Rules, Chapter 7050, identifies the following designated use and class for Lake Independence: aquatic life and recreation (Class 2B). Minnesota's standards include narrative criteria for nutrients which limit the quantity of nutrients which may enter the waters. Minnesota's standards (Minn. R. Chap. 7050. Subp. 3 & Subp. 5) state that all Class 2 waters of the state shall be free from any material increase in undesirable slime growths or aquatic plants, including algae. Since MPCA currently lacks statewide numeric criteria for nutrients, the MPCA proposed phosphorus standard for the Class 2B waters in the Northern Central Hardwood Forest (NCHF) ecoregion (40 µg/L) is being used as the basis for the nutrient TMDL numeric target in the Lake Independence TMDL. MPCA's proposed numeric standards for phosphorus, even though not yet approved, are designed to meet the current applicable narrative water quality standards and designated uses.

In order to maintain the water quality conditions that warrant full support of the designated uses in Lake Independence and to add a Margin of Safety (See Section 6 below), the submitted TMDL adopted a total phosphorus target of 36 µg/L as an average concentration over the summer season (June through September) for Lake Independence. Since this TMDL target

concentration is 10% lower than the MPCA's proposed total phosphorus WQS (40 µg/L), the TMDL target will also meet the applicable WQS for nutrients.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. U.S. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. U.S. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and non-point source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate non-point source loadings, e.g., meteorological conditions and land use distribution.

Comments:

MPCA determine that the total loading capacity, i.e., total maximum daily load, of total phosphorus for Lake Independence (ID# 27-0176-00) is 3.66 lbs/day (Section 5.7 of the final TMDL report). This allowable phosphorus load (3.66 lbs/day), which will lead to compliance with the WQS, corresponds to 54% of the existing phosphorus load (6.52 lbs/day). In order to achieve the TMDL, it will be necessary to reduce 45.4% (2.84lbs/day) of the estimated existing phosphorus load (6.52 lbs/day).

A series of lake response models were used to determine the final target phosphorus load reduction: MINLEAP, BACHMAN-CANFIELD, FLUX, and BATHTUB. The Minnesota Lake Eutrophication Analysis Procedure (MINLEAP) is a model designed to predict eutrophication indices in Minnesota lakes based upon lake surface area, mean depth, watershed area and ecoregion. The MINLEAP model was used to quantify the feasibility of the TMDL target goal. MINLEAP estimated the expected water quality of Lake Independence assuming "typical" nutrient inflows based upon basin characteristics, basic water chemistry, and geographic location (based largely upon the ecoregion concept). The MINLEAP model predicted a mean summer phosphorus concentration of 31 µ/L which was relatively close to the recommended target phosphorus concentration of 36 µ/L (Table 5 and Section 2.3 of the TMDL report).

BACHMAN-CANFIELD is a model developed specifically for reservoirs, that simulates in-lake phosphorus concentrations based on phosphorus loading rates, lake geometry and water

residence time in the lakes. The BACHMAN-CANFIELD model was used to estimate the total phosphorus load needed to explain the observed water quality, as well as the amount of phosphorus load reduction needed to achieve the TMDL target in-lake phosphorus concentration of $36\mu\text{g/L}$. This was accomplished by calibrating the model with observed field data to estimate the total phosphorus load, followed by sequential reduction of the phosphorus load value until the desired in-lake concentration was achieved.

BATHTUB is a model that performs steady-state water and nutrient balance calculations in a spatially segmented hydraulic network which accounts for advective and diffusive transport and nutrient sedimentation. FLUX is a model that allows estimation of tributary mass discharges (loadings) from sample concentration data and continuous flow records. The FLUX and BATHTUB models were used to estimate the total nutrient inflows from each of the major subwatershed within the entire Lake Independence drainage area (Table 7 and Figure 10 of the final TMDL report). The nutrient runoff model was developed by entering the areas for individual land-use categories, as determined by GIS mapping, and literature values for typical nutrient export from each land-use category. The model was then calibrated with storm water inflow data collected in 2001 and lake water quality data from 1990 to 2003. The final model outputs estimated the relative phosphorus contribution of each land-use category within the watershed (Table 10 and Figure 12 of the final TMDL submitted report).

In addition, an internal phosphorus loading was estimated by subtracting the estimated external load (BATHTUB model output) from the total load calculated by the BACHMAN-CANFIELD model (Table 10 of the final TMDL report).

The critical environmental conditions for the phosphorus impairments in Lake Independence correspond to the summer months, when observed phosphorus concentrations in the lake are highest. Surface runoff contains nutrients which are transported into the lake during summer rain events. Nutrients can also be internally loaded to the lake, resulting from aquatic plant senescence or entrainment of phosphorus-rich hypolimnetic water during summer mixing events.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this third element.

4. Load Allocations (LAs)

U.S. EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future non-point sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and non-point sources.

Comments:

MPCA determined that the total load allocation (LA) of total phosphorus for Lake Independence is 1.91 lbs/day (Section 5.7 of the final TMDL report). This LA (1.91 lbs/day) corresponds to ~23% reduction (0.57 lbs/day) from the estimated existing phosphorus load by nonpoint sources (2.48 lbs/day). The existing nonpoint sources contributing to the LA include agricultural cropland, urban development, failing septic, direct aerial loads, and direct animal waste inputs from livestock, geese and deer. See Table 12, Table 13, and Section 5.3 of the final TMDL report for additional information on the phosphorus load allocations for nonpoint source categories within the Lake Independence watershed.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

U.S. EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. U.S. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comments:

MPCA determined that the total waste load allocation (WLA) of total phosphorus for the Lake Independence is 1.65 lbs/day (Section 5.7 of the final TMDL submitted report). This WLA (1.65 lbs/day) corresponds to a ~59% reduction (2.39 lbs/day) from the estimated existing phosphorus load by point sources (4.04 lbs/day). The existing point sources contributing to the WLA include the Municipal Separate Storm Sewer Systems (MS4's) from three municipalities (Independence, Loretto and Medina), and the Loretto Wastewater Treatment Facility Effluent Discharge. The WLAs for the Independence (MS400095), Loretto (MS400030) and Medina (MS400105) MS4s are 0.95 lbs/day, 0.7 lbs/day and 0.63 lbs/day respectively. The Loretto Wastewater Treatment Facility (permit# MN0023990) currently contributes 53 lbs/year (0.15 lbs/day) of phosphorus load to Lake Independence. The Lake Independence TMDL requires a complete reduction in the phosphorus loading from the Loretto WWTP, and therefore assigned a WLA of zero to this point source. See Table 11, Table 13, and Section 5.2 of the final TMDL report for additional information on the phosphorus waste load allocations for the individual sources within the Lake Independence watershed.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this fifth element.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). U.S. EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through

conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comments:

The Lake Independence TMDL incorporated an explicit margin of safety (MOS) in the allowable pollutant load calculation. An explicit MOS was incorporated by setting a target concentration (36 µg/L) that is 10% lower than the MPCA proposed phosphorus WQS (40 µg/L). Additionally, an explicit MOS of 2.7% (0.10 lbs/day) was also incorporated into the TMDL to account for the effects of rainfall variability. See Section 5.5 and Section 5.7 of the final TMDL report for additional information on the MOS for the Lake Independence TMDL.

U.S. EPA finds that the TMDL document submitted by MPCA contains an appropriate MOS satisfying all requirements concerning this sixth element.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comments:

The Lake Independence phosphorus TMDL accounted for seasonal variation in the calculation of the nutrient loads. Model simulations used "average year" rainfall volume data to estimate the nutrient loadings to Lake Independence in order to account for the precipitation patterns which strongly influenced the nutrient loads. Tables 14 and 15 of the final TMDL report summarize the modeled sensitivity of in-lake phosphorus to changes in annual precipitation.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this seventh element.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur, U.S. EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that non-point source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for U.S. EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

U.S. EPA's August 1997 TMDL Guidance also directs Regions to work with States to

achieve TMDL load allocations in waters impaired only by non-point sources. However, U.S. EPA cannot disapprove a TMDL for non-point source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comments:

Section 7 of final TMDL report presents reasonable assurances and implementation alternatives for resolving the water quality problems associated with phosphorus in Lake Independence.

As previously indicated, a reduction of 45.5% (2.84 lbs/day) in the current nutrient loading to the lake is necessary to achieve the adopted water quality goal of 36 ppb. Table 15 of the final submitted TMDL report identified the reductions from phosphorus sources that could be directly achieved through the implementation of BMPs. In addition, internal loading is predicted to decrease by 209 lbs/year as external loading is reduced.

Reasonable assurances for achieving the necessary WLAs will be through the state NPDES permit process. Permit conditions will need to be consistent with the assumptions and requirements used to establish the approved wasteload allocations. Reasonable assurance for nonpoint source load allocations include best management practices such as buffers zone establishment in agricultural cropland, animal waste control measures, urban runoff management, rigorous enforcement of septic systems rules, and goose removal program.

The implementation of the BMPs necessary to achieve the phosphorus targets for the Lake Independence TMDL will be the responsibility of the Cities of Independence, Loretto, and Medina. These municipalities have the constitutional authority to adopt and enforce ordinances requiring compliance with the target phosphorus load reductions discussed in the TMDL report.

In addition, the Pioneer-Sarah Creek Watershed Management Commission will coordinate the required phosphorus load reductions with all three of the affected municipalities. The Commission has the legislative authority to assess an *ad valorem* tax to implement capital improvement projects in the watershed to reduce nutrient loading to Lake Independence. Working cooperatively, the two municipalities and the watershed commission have the regulatory authority and funding capacity to ensure achievement of the Lake Independence TMDL.

Additional assurance for BMP implementation will be provided by the *Pioneer-Sarah Creek Watershed Commission 2nd Generation Plan* which includes a non-degradation policy for future land development. This policy requires any proposed development activities within the watershed to meet strict guidelines to protect water quality and prevent increases in runoff and nutrient loading.

U.S. EPA finds that the TMDL document submitted by MPCA adequately addresses this eighth element.

9. Monitoring Plan to Track TMDL Effectiveness

U.S. EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (U.S. EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur. Such a TMDL should provide assurances that non-point source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to

determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comments:

Monitoring is necessary to determine whether sufficient progress is being made toward attaining WQS. The TMDL study suggests the continuation of the existing water quality monitoring program for Lake Independence. This monitoring plan includes the bi-weekly collection of water column profiles (temperature, dissolved oxygen, pH, and conductivity) and discrete water sample collection from the surface, middle, and bottom of the water column with actual sample depths dependent upon stratification conditions at the time of sample collection. The collected water samples will be analyzed for total phosphorus, soluble reactive phosphorus, total nitrogen, and chlorophyll-a. Additional inflow monitoring will also be initiated during and after implementation of this TMDL to quantify actual external load reductions.

U.S. EPA finds that this ninth element has been adequately addressed in the TMDL document submitted by MPCA, although U.S. EPA is not approving these recommendations for monitoring or any other aspect of Minnesota's monitoring program through this decision.

10. Implementation

U.S. EPA policy encourages Regions to work in partnership with States/Tribes to achieve non-point source load allocations established for 303(d)-listed waters impaired by non-point sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that non-point source LAs established in TMDLs for waters impaired solely or primarily by non-point sources will in fact be achieved. In addition, U.S. EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. U.S. EPA is not required to and does not approve TMDL implementation plans.

Comments:

Section 7 of final TMDL submitted report presents some implementation alternatives for resolving the water quality problems associated with phosphorus in Lake Independence by focusing on reducing the movement of phosphorus from the watershed area into Lake Independence.

Implementation alternatives for nonpoint sources include:

- Establishment of buffer strips along drainage ditches, streams, and wetlands would significantly reduce nutrient runoff from agricultural cropland in the watershed.
- Improved manure storage, improved land application practices, and better pasture management to reduce the phosphorus runoff from existing feedlots.
- Urban runoff management through the installation of rain gardens, street sweeping, removal of leaf litter from streets, installation of shoreline buffers, and stabilization of eroding lake shore.
- Reduction of loading from failing Individual Sewage Treatment Systems (ISTSSs) through rigorous enforcement of ISTS rules (R. Ch. 7020) by increasing the inspections of septic systems by local city governments, requiring remediation of failing systems, and the more frequent pump-out of all septic system tanks. These requirements have the ultimate goal of eliminating all loading from failing ISTSSs.
- Developing a cooperative program to capture and remove geese from the lake in late summer when the birds are flightless.

Implementation alternatives considered for point sources include:

- The elimination of the phosphorus discharge from the Loretto wastewater treatment facility by connecting the Loretto discharge to the Metropolitan Council Wastewater Treatment System. The two options that have been proposed to connect Loretto sewerage infrastructure to existing sewage treatment plant conveyance systems include the installation of a sewer line south along County Highway 19, or the connection to a proposed sewer line along Highway 55 to the north.
- The three municipalities (Independence, Loretto, and Medina) within the Lake Independence watershed, that have been designated as "*Mandatory Municipal Separate Storm Sewer Systems (MS4s)*" by MPCA, will be responsible for developing and implementing a *Stormwater Pollution Prevention Program (SWPPP)* that will reduce phosphorus and other pollutants to the "maximum extent practicable" as a part of the *Phase II National Pollutant Discharge Elimination System (NPDES)* program. These SWPPP's are required to incorporate six "minimum control measures" intended to ensure adequate storm water management and pollution prevention by designated MS4s. These minimum control measures include:
 - Public Education and Outreach on Storm
 - Public Involvement and Participation
 - Illicit Discharge Detection and Elimination
 - Construction Site Runoff Control
 - Post-Construction Storm Water Management in New Development and Redevelopment
 - Pollution Prevention and Good Housekeeping for Municipal Operations

Although a formal implementation plan is not required as a condition for TMDL approval under the current U.S. EPA regulations, U.S. EPA finds that the TMDL document submitted by MPCA adequately addresses this tenth element.

11. Public Participation

U.S. EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, U.S. EPA has explained that final TMDLs submitted to U.S. EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When U.S. EPA establishes a TMDL, U.S. EPA regulations require U.S. EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If U.S. EPA determines that a State/Tribe has not provided adequate public participation, U.S. EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by U.S. EPA.

Comments:

The Lake Independence TMDL development process included active participation by a large group of stakeholders in the watershed. The following groups were represented on the TMDL stakeholder committee: The Lake Independence Citizens Association; Pioneer Sarah Creek Watershed Management Commission; The City of Medina; The City of Independence; The Independence Horse Owners Association; The Medina Horse Association; Hennepin County Environmental Services; Three Rivers Park District; at large citizens; and a representative of the

agricultural producers in the watershed. The committee members met monthly for approximately two years, and the committee was chaired by a representative from the Lake Independence Citizens Association.

The Pioneer-Sarah Creek Watershed Commission hosted two community-wide meetings to discuss the TMDL results. Each of these meetings was attended by approximately 50 citizens in the Lake Independence community. All citizens were encouraged to provide input into the process. In addition, the Watershed Commission organized multiple meetings with the three municipalities in the watershed to discuss the WLA's. These meetings were attended by the mayor and council members from Median and Independence. The final WLA's from each municipality were discussed and agreed upon at these meetings.

The Lake Independence TMDL was public noticed from October 30 to November 29, 2006. The public was made aware of the TMDL public meetings and public notice through local press releases to local media outlets and letters of invitation to interested parties. Copies of the draft TMDL Report for Lake Independence were available to the public upon request and on the MPCA website at <http://www.pca.state.mn.us/water/tmdl.html#drafttmdl>. As part of the final TMDL submittal, the state provided to U.S. EPA copies of the press releases of public notice, the mailing list of interested parties, and copies of the written public comment letters received during public comment period and the state responses to these comments (Enclosures 2 – 5 of the TMDL final package). MPCA received twenty one (21) written public comments during Lake Independence TMDL public comment period, and all of these comments were adequately addressed by MPCA.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to U.S. EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for U.S. EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and U.S. EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comments:

A transmittal letter submitting the final TMDL to USEPA was dated February 16, 2007 and received by the Watersheds & Wetlands Branch, Water Division, USEPA, Region 5 on February 16, 2007. The transmittal letter explicitly states that the final Lake Independence Total Maximum Daily Load for excess nutrients is being submitted to USEPA pursuant to Section 303(d) of the Clean Water Act for USEPA review and approval. The letter clearly stated that this was a final TMDL submittal under Section 303(d) of CWA. The letter also contains the name of the watershed as it appears on Minnesota's 2006 303(d) list, and the listed causes/pollutants of concern.

U.S. EPA finds that the TMDL document submitted by MPCA satisfies all requirements concerning this twelfth element.

13. Conclusion

After a full and complete review, U.S. EPA finds that the TMDL for Lake Independence (Segment ID# 27-0176-00) satisfies the elements of an approvable TMDL. This approval addresses one (1) segment for one (1) pollutant for a total of one (1) TMDL addressing one (1) impairment (see table below).

Lake Independence	27-0176-00	Total phosphorus	excess nutrients
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U.S. EPA's approval of the Lake Independence TMDL extends to the waterbodies which are identified in this decision document and the TMDL study with the exception of any portions of the waterbodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. U.S. EPA is taking no action to approve or disapprove the State's TMDL with respect to those portions of the waters at this time. U.S. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.